Stellingen

Propositions belonging to the thesis "Non-relativistic supergravity in three space–time dimensions".

- Invariance under general coordinate transformations is not exclusive for relativistic theories. A non-relativistic theory can also have this feature.

  Chapter 1

- Non-relativistic geometry cannot be described by the "metric-like" objects τ_μ and $h^{\mu\nu}$ alone. One has to add also another vector (gauge-)field m_μ.

  Chapter 2

- Non-relativistic contractions can be performed on symmetry algebras. In some cases, this contraction procedure can be extended to the multiplet of fields that realizes the symmetry algebra.

  Chapter 3

- A non-relativistic superalgebra should have at least two supersymmetry charges.

  Chapter 3

- There are two possible extensions of the Galilei algebra with dilatations. Only one of them, the Galilean Conformal algebra, is truly "conformal" in the usual sense. The other one, the Schrödinger algebra, allows for massive representations.

  Chapter 5

- The Schrödinger tensor calculus naturally leads to a Newton–Cartan gravity theory with torsion. The origin of the torsion is the spatial part b_a of the dilatation gauge-field.

  Chapter 6

- Even a hundred years after its conception the theory of general relativity stands firm against any corrections. It took a genius to construct it, it takes more than one to improve it.

- Science is as much a tool to describe the world as language is to formulate one's thoughts and desires. Ultimately though, both have limits and are insufficient to convey the full picture.

stellingen [9 november 2015]